

A NEW BATRACHIAN AND A NEW REPTILE FROM THE TRIAS OF ARIZONA.

By **FREDERIC A. LUCAS,**

Acting Curator, Section of Vertebrate Fossils.

The two species of fossil vertebrates to be described add two genera to the Triassic fauna of North America, one representing the large labyrinthodonts hitherto known only from Europe, the other being a new and large Cotylosaurian. The history of the discovery of these vertebrates is as follows:

In November, 1899, while visiting the fossil forest of Arizona, Dr. Lester F. Ward obtained near Tanners Crossing of the Little Colorado River a few specimens of Triassic vertebrates. The majority of them proved to belong to the large belodont described as *Heterodontosuchus ganei*,^a two scutes were from the belodont *Episcoposaurus* Cope, while a small portion of a cranial plate was identified by Dr. E. Fraas as being from some large labyrinthodont. The subsequent year, 1900, Mr. Barnum Brown visited the locality to collect for the U. S. National Museum, largely in the hope of obtaining some ancestral forms of Stegosaurus. While this hope was not realized Mr. Brown secured a valuable collection of Triassic fossils, mainly belonging to the two belodonts mentioned above, though comprising a few examples of other animals. This material was mostly in a very fragmentary condition, one of the few noteworthy exceptions to this rule being an episternum of a large labyrinthodont, which, though badly shattered, proved to be practically all present. This was pronounced by Dr. E. Fraas, to whom a photograph was submitted, to be unmistakably from some species of the genus *Metoposaurus*, and in consideration of this fact I have named the species in his honor. This seems particularly appropriate in view of his various memoirs on the Triassic vertebrates of Europe.

^aAm. Journ. Sci., 1898, VI, p. 399.

METOPOSAURUS FRAASI, new species.

Type.—An episternum, No. 2152, catalogue of fossil vertebrates, U. S. National Museum, from 5 miles east of Tanners Crossing, Little Colorado River, Arizona. This locality is about 25 miles above the junction of the Little Colorado with the Colorado. The specimen is shown on Plate III.

The species is characterized by the coarseness of the sculpturing of the episternum and the fact that the markings of the center of the plate consist of irregular pits which, toward the margin, are transformed into radiating grooves. These grooves are most marked on the anterior portion of the bone. The portions of clavicles present also have the ornamentation in the shape of pits rather than as grooves, and in this respect and in the greater coarseness of the sculpture the present species differs from the European *Metoposaurus diagnosticus* of von Meyer. It is furthermore characterized by the extent of the articulation of the clavicle with the episternum, the posterior end of the clavicle being well behind a line drawn through the center of the plate. The postero-internal angle of the clavicle is very much rounded instead of being decidedly angular, as it is in *Metoposaurus diagnosticus*.

The episternum is 43 cm. ($16\frac{3}{4}$ inches) long and 30 cm. ($11\frac{1}{4}$ inches) wide.

The only other specimen that can be referred to this species is the anterior portion of a left mandible, somewhat weathered, found at the same locality as the episternum. This mandible is coarsely sculptured on the external face, and bears indications of two large teeth at the very front of the ramus, and behind these 15 small teeth. These seem to have been largely attached to the external wall of the alveolus in a manner somewhat suggestive of the pleurodont dentition of an iguana.

From the same Triassic beds, though at some little distance from the locality where the episternal plate of *Metoposaurus* was obtained, Mr. Brown secured a number of fragments which, when put together, proved to be the humerus of a large Anomodont, or, more strictly speaking, Cotylosaurian. This represents a new species and new genus for which the name of *Placerias hesternus* is proposed, the generic name being given on account of the breadth of body indicated by the short, broad humerus.

PLACERIAS, new genus.

PLACERIAS HESTERNUS, new species.

Type.—A right humerus, No. 2198 catalogue of fossil vertebrates, U.S.N.M., from 3 miles north of Tanners Crossing of the Little Colorado River, Arizona. The specimen is figured on Plate IV. The characteristic features of the genus and species are the great and sudden expansion of the deltoid ridge, the contraction of the humerus at the

center of the shaft, and the sharp definition and differentiation of the radial and ulnar articulations. While the deltoid ridge is prominent in many Anomodonts, it is peculiar in the present species from the fact that it seems to have started practically from the proximal end and not from a little distance down the shaft, as it does in such a form as *Gomphognathus*.^a

The humerus of *Placerias* otherwise bears a slight resemblance to that of *Gomphognathus*, but is vastly larger, and indicates an animal of much greater size and power. Among African Anomodonts the humerus suggests most that of *Cynodrakon*, but here again it is much more expanded proximally. A large, elongate entepicondylar foramen was present, but the portion bounding the outer side of this is missing and its position is not clearly indicated on the accompanying plate. The articular face for the radius is large, round, and well defined, and the olecranal fossa is of good size; the proximal end of the humerus was capped with cartilage, but the amount in the elbow joint must have been small. The indications are that *Placerias* was a creature largely, if not entirely, terrestrial in habit.

The measurements of the humerus are as follows: Greatest length, 398 mm. ($15\frac{3}{4}$ inches); estimated breadth across deltoid ridge, 200 mm. ($7\frac{7}{8}$ inches); breadth of portion actually present, 170 mm. ($6\frac{3}{4}$ inches); breadth at lower end of deltoid ridge, 144 mm. ($5\frac{1}{2}$ inches); least diameter of shaft, 60 mm. ($2\frac{3}{8}$ inches); greatest distal breadth, 155 mm. ($6\frac{1}{8}$ inches).

The large *Cotylosaurians* hitherto described from North America are from the Permian, while the present specimen is from the Trias. The animal represented is also larger than any of the Permian species, and, in this respect, is on a par with *Pariasaurus*. The humerus, however, is quite different from that ascribed to *Pariasaurus*, and while the discovery of animals of this genus in Russia indicates that the group to which it belongs was widely distributed, it is evident that the present specimen is not *Pariasaurus*. It is nevertheless quite probable that *Placerias* belongs to some allied family, or possibly to the same family.

The beds from which the two species just described were obtained also contained remains of the large *Belodon*, *Heterodontosuchus guncii* and of the dinosaur *Palaeoconus*. The same assemblage of species has recently been found by Mr. Newton H. Brown near Lander, Fremont County, Wyoming, which considerably extends the northerly limit of these Triassic beds. Aside from the interest attached to the finding of this new species is the more important fact, pointed out by Dr. Fraas, that the genus *Metoposaurus* is characteristic of the Keuper of Europe, and that we have in these Triassic beds of Arizona, Utah, and Wyoming the same combination of belodont and labyrinthodont as in the Keuper.

^a Seeley, Trans. Roy. Soc., 1895, B, p. 29.